IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 19, Issue 12 Ser.2 (December. 2020), PP 11-14
www.iosrjournals.org

Simple educational intervention used to improve hand hygiene compliance

Dr. Dipti Gaikwad[1], Dr. ShripadTaklikar[2]
[1](Clinical Microbiologist, India)
[2](Consultant Microbiologist, India)

Abstract:
Background*: Proper hand hygiene is the single most important, simplest, and least expensive means of reducing the prevalence of Health care associated infections and the spread of antimicrobial resistance. The purpose of this project was to observe compliance of hand hygiene, study improvement in hang hygiene compliance and infection control rate improvement following educational intervention*
Materials and Methods*: This was a hand hygiene program implemented with the hopes of improving hand hygiene and decreasing hospital-associated infection rates. A multidisciplinary group developed a hospital supported campaign. Opportunities for hand hygiene were observed during 2 periods, pre campaign and post campaign. The frequency of hospital-associated infection in the burns ward was tracked over time by review of records pre and post campaign*
Results*: Pre campaign the compliance for hand hygiene was 27.09%. The staff was educated regarding importance of hand hygiene and effective hand hygiene techniques. This improved the compliance and post campaign it was found to be 42.06%.The difference between compliance ;pre and post educational campaign was found to be statistically significant.*
Conclusion: *The study showed that Hand hygiene can be improved by simple educational intervention and it is an important preventive measure to reduce hospital acquired infections*
Key Word: *Hand hygiene,compliance, educational intervention*

Date of Submission: 20-11-2020 Date of Acceptance: 06-12-2020

I. Introduction

Nosocomial infections constitute a major challenge of modern medicine. On average, infections complicate 7% to 10% of hospital admissions.[1] Over 1.4 million people worldwide are suffering from Hospital Acquired Infections or nosocomial infections as they are called. In India, nosocomial infection rate is at over 25 per cent and it is responsible for more mortality than any other form of accidental death. The irony is that one-third of all such episodes are preventable.[2] Transmission of microorganisms from the hands of health care workers is the main cause of nosocomial infections.[1]

Hand hygiene is the simplest, most effective measure for preventing nosocomial infections.[1,3,4.5] Despite advances in infection control and hospital epidemiology, Semmelweis' message is not consistently translated into clinical practice , and health-care workers' adherence to recommended hand hygiene practices is unacceptably low. Average compliance with hand hygiene recommendations varies between hospital wards, among professional categories of health-care workers, and according to working conditions, as well as according to the definitions used in different studies. Compliance is usually estimated as <50%.[2,5]

Hand hygiene effectiveness and compliance can be improved with simple educational intervention.[6,7]It is an effective means of preventing hospital-associated infection. Few studies aimed at increasing hand hygiene in the hospital setting have shown sustained improvement and concurrent decreases in hospital-associated infections.[8]

II. Material and Methods

We implemented a hand hygiene program with the hopes of improving hand hygiene and decreasing hospital-associated infection rates. A multidisciplinary group developed a hospital supported campaign. Opportunities for hand hygiene were observed during 2 periods, pre campaign and post campaign. The frequency of hospital-associated infection in the burns ward was tracked over time by review of records pre and post campaign. [4]

Handwashing facilities are conveniently located throughout the institution. Sinks are located inside every patient room, along with towels and unmedicated soap. Dispensers of hand antiseptic solutions are

available in high-risk areas. Individual bottles containing an alcohol-based preparation of 0.5% chlorhexidinegluconate are available in every ward.

The study took place in the burns ward in January –February 2011. We informed department chairs about the upcoming study in advance. Personnel were aware that they were being observed. In accordance with the requirements of the institutional review board, we did not identify staff members by unique identifier.

Potential opportunities for and actual performance of handwashing were observed randomly during day and night over 7 days. Observations could be prolonged until completion of a patient care episode. Data were recorded on a report form. Compliance with handwashing was defined as either washing the hands with water or plain soap or rubbing the hands with an antiseptic solution. Departure from the room after patient care without handwashing was regarded as noncompliance. Handwashing was required regardless of whether gloves were used or changed. Failure to remove gloves after patient contact or contact between a dirty and a clean body site on the same patient was considered noncompliance.[1]

The staff was educated through a hand a hygiene campaign which included lecture explaining importance of hand hygiene in control of hospital acquired infections, presentation, poster and slogan competition, and a demonstration explaining effective hand hygiene technique.

A total of 61 personnel working in the burns department were asked to clean their hands using an alcohol gel containing a clear fluorescent substance. They were unaware of the assessment method. Performance was assessed by examining their hands under UV light to identify areas that had been neglected. Subjects could visualize which areas they had missed and were then educated regarding hand-washing technique which clearly described an effective method of hand-washing with the gel.

Post campaign the opportunities for hand hygiene were recorded in the same ward on the similar record forms. The hospital acquired infection were calculated over a period of one month post hand hygiene campaign.[4]

Statistical analysis: Statistical analysis was done with the help of a professional medical statistician. McNemar test was applied to the data and Chi square and p value calculated.

III. Result

The present study was carried out in the burns unit of a tertiary care hospital.A retrospective analysis of nosocomial infection over a period of one month was done which found to be 9.13%.An observational study was done to find the compliance of hand hygiene in the ward. A total of 860(Pre campaign) and 718 (Post campaign) opportunities were reported as shown in Table 1 and Fig.1. Hand hygiene compliance was found to be 27.09%. In order to improve the hand hygiene an educational campaign was organized. The campaign included a lecture explaining importance of hand hygiene and its role in control of hospital acquired infections, presentation, poster and slogan competition, and a demonstration explaining effective hand hygiene technique. Post campaign the compliance of hand hygiene improved and was found to be 42.06% as shown in Table 1and Fig 2. The hospital acquired infections also reduced to 7.04% as shown in Table 2 and Fig. 3

Table I: Compliance of hand hygiene pre and post campaign

	Opportunities for hand hygiene			
	Actions taken*	**Missed opportunities**	**Total opportunities**	**Compliance** (%)**
Pre campaign	233	627	860	27.09
Post campaign	302	416	718	42.06

*Actions taken:Hand wash / Alcohol Hand Rub,** Compliance %: Actions / opportunities * 100
McNemar test was applied for the statistical analysis; Chi square =113.347 $p < 0.01$
For such a high Chi square value p value is very very low.

Pre campaign the compliance for hand hygiene was 27.09%. The staff was educated regarding importance of hand hygiene and effective hand hygiene techniques. This improved the compliance and post campaign it was found to be 42.06%.The difference between compliance; pre and post educational campaign was found to be statistically significant.There was significant improvement in compliance of hand hygiene pre and post educational campaign

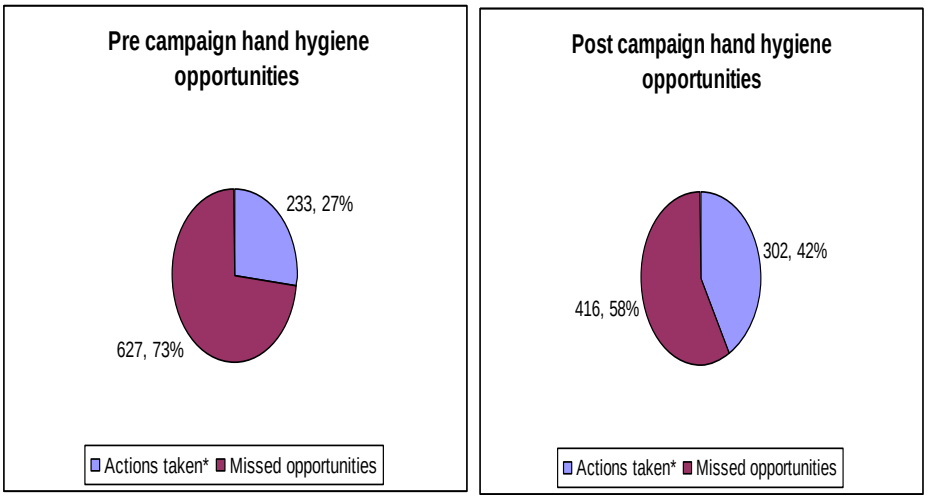

Fig 1. Hand hygiene opportunities pre and post campaign

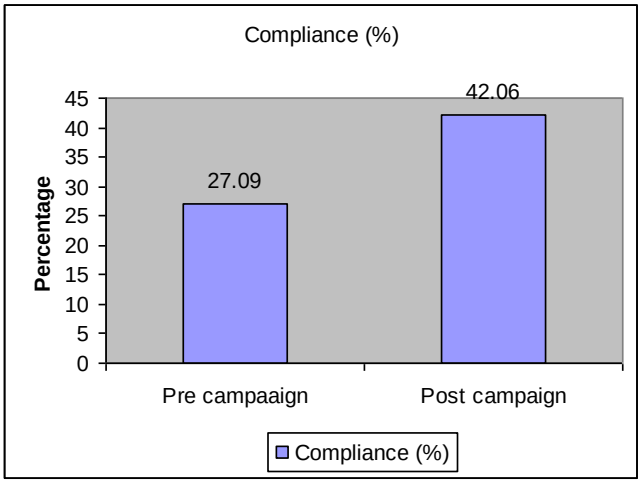

Fig 2 Compliance of hand hygiene

Table II: Hospital acquired infections pre and post campaign

	Hospital acquired infections			
	Yes	**No**	**Total**	**Percentage (%)**
Pre campaign	19	189	208	9.13
Post campaign	16	211	211	7.04

McNemar test was applied for the statistical analysis; Chi square =145.152 $p< 0.01$

The rate of Hospital acquired infections pre and post educational campaign was reduced from 9.13% to 7.04% and the difference was found to be statistically significant.

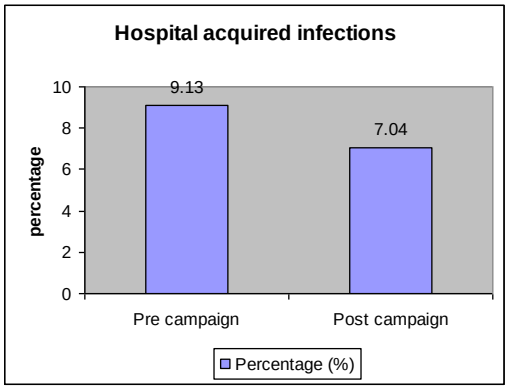

Fig 3. Hospital acquired infection pre and post campaign

IV. Discussion

It was found that the rate of nosocomial infections was high and increasing in the burns unit of our institution. One of the important strategies in prevention of nosocomial infections is limiting transmission of organisms between patients in direct patient care through adequate hand washing and glove use.[4]

Thus this study aimed at calculating the compliance and hospital acquired infection rate. We tried to improve the hand hygiene compliance through education and training. We found that with improvement in hand hygiene compliance there was significant reduction of hospital acquired infections from 9.13% to 7.04%. This reduction was statistically significant. This re-emphasizes the role of hand hygiene in control of nosocomial infections.There are innumerable studies which have tried to find the impact of hand hygiene on hospital acquired infections.[9, 10, 11]

Our study shows that the primary problem with hand washing is laxity of practice. During routine patient care, health care workers disinfected or washed their hands in approximately half of the indicated instances. Noncompliance with hand washing is a substantial problem in our hospital and is associated with identifiable factors. This suggests that interventions aimed at improving hand washing practices may be more effective if they focus on selected wards, groups of health care workers, or patient care situations. Health care workers need about 1 minute to walk to the sink, wash their hands, and return to the patient[1], the total amount of time spent washing hands becomes prohibitive. One possible solution is to replace time-consuming hand washing with bedside hand antisepsis. Whether switching from traditional hand washing to hand antisepsis improves compliance deserves testing in clinical trials.[1]

Our study has several limitations. First, although our observations were as unobtrusive as possible health care workers may have changed their behavior because they were being observed. Such a bias would probably inflate compliance estimates, a the real situation may be even worse than reported. Second, whether our results can be generalized to other health care institutions is uncertain because both the infrastructure and the organization of work influence behavior. Third the study was carried out for a short duration of time. An extensive study would be required to reach to a conclusion.

V. Conclusion

Healthcare worker's hands are the most common vehicle for the transmission of healthcare-associated pathogens from patient to patient and within the healthcare environment. Hand hygiene is the leading measure for preventing the spread of antimicrobial resistance and reducing healthcare-associated infections, but healthcare worker compliance with optimal practices remains low in most settings.We observed a improved compliance following education and training of staff. The rate of hospital acquired infections also showed a decline.

Acknowledgement

We would like to specially thank the patients, Nursing Department, Infection Control Department, Doctors and all other staff for their co-operation and inputs in successful completion of this Project. A special thanks to Dr. AshwiniKshirsagar for helping with the statistics of the project.

References

[1]. D Pittet, P Mourouga, T Pernegar ,Compliance with handwashing in a teaching hospital. *Annals of Internal Medicine,130(2),* 1999,126-130.

[2]. A Tandon, July 29 2006. *The Tribune, Chandigarh, India - Chandigarh Stories*. (Online) Available: http://www.tribuneindia.com/2006/20060730/cth3.htm. (11 February 2011).

[3]. D Pittet ,Improving Adherence to Hand Hygiene Practice: A Multidisciplinary Approach. *Emerging Infectious Diseases, 7(2),2001,* 234-240.

[4]. WHO. 2002. Prevention of hospital-acquired infections, A practical guide, 2nd edition. (Online).Available:http://www.who.int/csr/resources/publications/whocdscsreph200212.pdf (30 November 2011).

[5]. WHO. 2007. Improved Hand Hygiene to Prevent Health Care-Associated Infections. (Online). Available: http://www.ccforpatientsafety.org/common/pdfs/fpdf/presskit/PS-Solution9.pdf. (30 November 2011).

[6]. B Allegranzi, D Pittet .Role of hand hygiene in healthcare associated infection prevention. *Journal of Hospital Infection, 73(4),* 2009,305-315.

[7]. D Macdonald, E McKillop, S Trotter, A Gray, Improving Hand-Washing Performance – A Crossover Study of Hand-Washing in the OrthopaedicDepartment**,***Annals of the Royal college of Surgeons of England ,88(3),*2006,289–291.

[8]. D Zerr, A Allpress, J Heath, R Bornemann., E Bennet. Decreasing hospital-associated rotavirus infection: a multidisciplinary hand hygiene campaign in a children's hospital. *Pediatric Infectious Disease Journal,24(5),* 2005,397-403.

[9]. J Conly, S Hill, J Ross, J Lertzman, T Louei,Handwashing practices in an intensive care unit: the effects of an educational program and its relationship to infection rates. *American Journal of Infection Control, 17(6),*1989, 330-339

[10]. M Grayson, L Jarvie, R Martin, Significant reductions in methicillin-resistant Staphylococcus aureusbacteraemia and clinical isolates associated with a multisite, hand hygiene culture-change program and subsequent successful statewide roll-out, *The Medical Journal of Australia*, 188(1), 2008 ,633-640.

[11]. C Silva, S Hugonnet, RPfister, S Dharan, K Barbe, D Pittet, Reduction of health care associated infection risk in neonates by successful hand hygiene promotion. *Pediatrics*,120(2),2007,382-390.